

## ABSTRACT

A reagent system for substantially lysing red blood cells in a whole blood sample prior to leukocyte analysis, the reagent system includes: a first reagent for substantially lysing the red blood cells in the whole blood sample, and a second reagent for quenching the activity of the first reagent, wherein the second reagent includes a base and has a pH value of about 8 to 12. A final acidic media, ranging from about pH 4 to about 6, is used to stabilize the white blood cells and continuously remove red blood cell fragments. The first reagent is formulated to include: a saponin compound; an acid selected from the group consisting of halogenated carboxylic acids, phosphoric acid or combinations thereof and optionally a surfactant. In addition a method of lysing the red blood cells present in a sample of whole blood, includes the steps of: combining a predetermined portion of the sample of whole blood with a predetermined portion of a first reagent for substantially lysing the red blood cells and stabilizing white blood cells in the whole blood sample, wherein the first reagent includes: a saponin compound; and an acid; and quenching the lysing action of said first reagent by the addition of a predetermined portion of a second reagent, wherein the second reagent includes a base and has a pH value of about 8 to about 12 to give a solution containing substantially lysed red blood cells, leukocytes and a pH value of about 3 to about 6.